DECLARATION OF DAVID CZERWINSKI

1.   My name is David Czerwinski. I am employed as an *Assistant Professor of Marketing and Decision Sciences* at San Jose State University, San Jose, California.

2.   My Curriculum Vitae is attached as Exhibit A.

3.   In my teaching, research and publications, I use, mathematical techniques and algorithms associated with the fields of operations research and decision science applied to diverse problems in the private and public sectors.

4.   I have reviewed U.S. Published Patent Application 2004/0126748 A1 "Computer-Aided Learning System and Method" ("Ho et al." hereafter) and compared the system claimed therein to the system described in "Math Concepts and Skills" ("MC&S" hereafter) prepared by the Computer Curriculum Corporation. Both learning systems are algorithms and within the scope of my expertise in decision science and operations research.

5.   The MC&S system and Ho et al. claimed systems differ in their use of rules to generate material to present to the student. In computer science, rule based systems are known, for example in expert systems. Ho et al.'s system can be used to teach complex sequences of items in a subject (Ho et al. para. 0015-0016). The MC&S system, on the other hand, is only designed to present items in a linear fashion, when passing one item always leads to a fixed next item (MC&S Figure 1). Because of the more complex sequences of skills that it is possible to present to a student, Ho et al.'s claimed system incorporates rules that could have conflicts, and the capability to resolve conflicts among the rules that define the multiple paths by which a student can progress through the subject. Because of the linear nature of MC&S's system, such conflicts do not arise and a simplistic set of rules governing a student's progress through the material suffices in the MC&S system.

6.   The conflicts resolution system in the Ho et al. application is sufficiently described to be understood by a person of ordinary skill in the art.

7.   In my opinion, a person knowing about the MC&S system would not be led to the claimed system of Ho et al.

8.   In my opinion, considering the differences between the MC&S system and the claimed system of Ho et al., the latter is not obvious in view of the former.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued therefrom.

Date: April 26, 2010

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DAVID CZERWINSKI

David E. Czerwinski

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Current Position

8/08-Present   San Jose State University, San Jose, CA
                Assistant Professor, College of Business

Education

9/03-6/08   Massachusetts Institute of Technology, Cambridge, MA
             PhD in Operations Research.

9/93-6/98   Stanford University, Stanford, CA
             BS in Mathematical and Computational Science, with distinction.

Publications

"Depression and Increased Health Care Cost." *Psychosomatics*. Vol. 50, No. 4 (July-August 2009). Joint work with Charles Welch (Massachusetts General Hospital), Dimitris Bertsimas (MIT), and Bijay Ghimire (D2 Hawkeye, Inc.)

Large Scale Drug Safety Surveillance Using Insurance Claims Data. *Proceedings of the 3rd INFORMS Workshop on Data Mining and Health Informatics*. Washington, D.C. 2008. Joint work with Dimitris Bertsimas.

Managing and Measuring Online Brand Value. *Proceedings of the 16th Annual Conference of the American Society of Business and Behavioral Sciences*. Las Vegas, NV. 2009. Joint work with Michael Merz (SJSU) and Naveen Amblee (KAIST).

"Airlines as Baseball Players: A New Approach to Airline Safety." *Management Science* Vol. 52, No. 9 (September 2006). Lead article. Joint work with Arnold Barnett (MIT).

"Chicago's Regional Approach to Welfare To Work." *Transportation Research Record* No. 1753 (2001). Joint work with Kim Hunt (Chicago Transit Authority).

Presentations

"Creating Online Brand Value through Online Discussion Sites." Presented at the 17th Annual Conference of the American Society of Business and Behavioral Sciences. Las Vegas, NV. February 19, 2010.

"Moneyball." Presented at the San Jose State University Math Department Colloquium. April 1, 2009. Joint work with Arnold Barnett (MIT).

"Large Scale Drug Safety Surveillance Using Insurance Claims Data." Presented at the 3rd INFORMS Workshop on Data Mining and Health Informatics. Washington, D.C. October 2008. Joint work with Dimitris Bertsimas (MIT).

"Quality in Health Care." Presented at the INFORMS annual conference. Seattle, WA. November 2007. Joint work with Dimitris Bertsimas (MIT) and Michael Kane (MIT Medical).

"Statistical Models to Identify Quality Care." Poster presented at the MIT Operations Research in Health Care conference. Cambridge, MA. May 2007. Joint work with Dimitris Bertsimas (MIT) and Michael Kane (MIT Medical).

"Depression and Increased Health Care Cost." Presented at the INFORMS annual conference. Pittsburgh, PA. November 2006. Joint work with Dimitris Bertsimas (MIT), Charles Welch (Massachusetts General Hospital), and Bijay Ghimire (D2 Hawkeye Inc.).

"Using a Mixed Integer Program to Set Army Supply Support Activity (SSA) Inventory Levels." Presented at the INFORMS annual conference. San Francisco, CA. November 2005. Joint work with Carol Fan, Elvira Loredo, Kenneth Girardini, and Candice Riley (all at RAND).

"Using Entry-Only Automatic Fare Collection Data to Estimate Rail Transit Passenger Flows at CTA." Presented at Transport Chicago. Chicago, IL. June 2002. Joint work and presentation with Adam Rahbee (Chicago Transit Authority).

"CTA Ridership: It's in the Cards." Presented to the Chicago Area Transportation Model Users Group. Chicago, IL. July 2001.

"Chicago's Regional Approach to Welfare To Work." Presented at the Annual Meeting of the Transportation Research Board, Washington, D.C. January 2001. Joint work with Kim Hunt (Chicago Transit Authority).

Teaching Experience

8/08-Present   **Quantitative Business Analysis.** Instructor, San Jose State University
A core course for the undergraduate curriculum covering quantitative methods used in business decision making. Topics include probability theory, decision analysis, optimization modeling, and project analysis techniques.

Data Mining. Instructor, San Jose State University
An undergraduate elective for business majors covering modern data mining methods using Excel and the R statistical software package. Covers data visualization, classification, clustering, ensemble methods, and anomaly detection.

9/09 – 12/09   **Data Driven Decision Making.** Visiting Instructor, Reykjavik University.
A Masters level course constructed around the idea that smart companies use quantitative methods to gain an edge over their competitors. Through case studies, told the story of some of these companies. In addition, covered the technical aspects of the modern data mining techniques that they use: classification trees, logistic regression, k-means clustering, SVM, boosting, and bagging.

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6/07-7/07   **Communicating with Data.** Teaching Assistant, MIT
A core course for the Sloan Fellows Program in Innovation and Global Leadership.
Covered elementary probability, conditional probability, discrete and continuous
distributions, the chi-square test, random sampling, confidence intervals, and linear
regression. Conducted weekly recitations, assisted students during office hours, graded
assignments, and created the final exam.

4/07- 5/07   **Introduction to Operations Management.** Teaching Assistant, MIT
A half-semester course for Sloan MBA students. Covered process flow diagrams,
capacity analysis, inventory management, the newsvendor model, risk-pooling, delayed
differentiation, production control, quality management, and process design and
reengineering. Conducted tutorials, assisted students during office hours, graded problem
sets and case write-ups, and helped manage the Littlefield Technologies online factory
simulation game.

9/06-12/06   **Data, Models, and Decisions.** Teaching Assistant, MIT
A core course for Sloan MBA students. Covered decision analysis, discrete and
continuous distributions, simulation, sampling, the t-test, regression, and optimization.
Conducted recitations, assisted students during office hours, and graded problem sets,
case write-ups, and exams.

9/05-12/05   **Data, Models, and Decisions.** Teaching Assistant, MIT
See above. Received a rating of 5.0 out of 5.0 on the course evaluations and was later
voted the year's Outstanding TA by the Sloan MBA students.

6/04-8/04   **Engineering Probability and Statistics.** Teaching Assistant, MIT
A core course for MBA students in the Leaders for Manufacturing program. Covered
probability, quality control, Poisson processes, Markov processes, transform methods,
regression, two-sample tests, and design of experiments. Conducted recitations, helped
students during office hours, and graded assignments.

Professional Experience

5/04-8/04   **Summer Associate,** RAND Corp., Santa Monica, CA
Developed an integer optimization based method for setting spare part inventory levels at
the Army's tactical warehouses in Iraq. Improved upon a heuristic algorithm then in use.
Three aspects of the problem are particularly challenging: the warehouses are mobile so
there are severe constraints on capacity, demand patterns for parts are sporadic, and parts
are of differing levels of criticality.

3/02-8/03   **Senior Associate,** Transportation Management & Design, Carlsbad, CA
Provided services in transit system optimization, service design and scheduling;
operations and fleet management; and short and long range business planning.
Developed software using Excel, Visual Basic, and Access to manage, analyze, and
visualize transit ridership data.

7/00-1/02   **Senior Transit Research Analyst,** Chicago Transit Authority, Chicago, IL
Served as the Planning Department's lead analyst of the ridership data produced by the
CTA's Automated Fare Collection (AFC) system. Performed advanced analysis of trip

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patterns and transfer flows using SAS and Excel. Coordinated and trained staff who produced monthly ridership reports.

3/99-7/00   **Transit Research Analyst II, Chicago Transit Authority, Chicago, IL**
Analyzed CTA bus and subway ridership. Studied ridership trends and system usage by time of day and location. Developed ridership reporting systems using SAS, Excel, Access and Visual Basic.

6/95-9/96   **Trader and Software Developer, Kottke Associates, Chicago, IL**
Member of a team engaged in an arbitrage trade of the US Dollar Index against a basket of currencies futures. Traded US Dollar Index options. Developed a Visual Basic application to process real-time market data, facilitate trade execution, and analyze trading performance.

Honors and Awards

- Invitee, INFORMS Teaching Effectiveness Colloquium. 2009.
- Invitee, INFORMS Future Academician Colloquium. 2007.
- Outstanding Teaching Assistant Award, MIT Sloan School of Management. 2005-2006. Based on a vote by all of the MBA students.
- Schoepflin International Fellow. The fellowship supported my participation in an internship with a manufacturer in Chennai, India. Summer 2002.

Service

- Marketing & Decision Sciences Student Motivation Committee. Spring 2009. Fall 2009.
- Marketing & Decision Sciences Faculty Development Committee. Spring 2009. Fall 2009.
- Decision Sciences Committee. Fall 2008. Spring 2009. Fall 2009.
- Mineta Transportation Institute RAPOC Committee. Spring 2009. Fall 2009.
- Chair of Community Liaisons, San Francisco Bay Area chapter of the American Statistical Association. Fall 2009.
- Referee for *Management Science, Operations Research, Transportation Science,* and the *Wiley Encyclopedia of Operations Research.*
- Organizer, MIT Operations Research Center student lunchtime talk series. Fall 2007.
- Coordinator, MIT Operations Research Center seminar series. Fall 2006.
- Panelist, MIT Sloan School of Management TA training. Fall 2007.
- Graduate Resident Tutor. McCormick Hall, MIT. 2004-2008.
- Treasurer, MIT Student Chapter of INFORMS. 2004-2005.
- Steering Committee, Metropolitan Conference on Public Transportation Research. 1999-2002.

Affiliations

- Research Associate, Mineta Transportation Institute.
- Institute for Operations Research and the Management Sciences.
- American Statistical Association.
- Community Liaisons Chair. San Francisco Bay Area Chapter of the American Statistical Association.

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